INVESTR

Software Architecture Documentation

Team LAST

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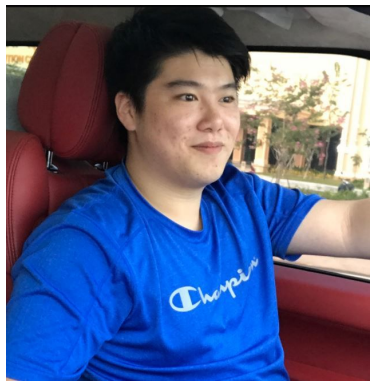

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1. Introduction

1.1 Purpose

This document provides a comprehensive architectural overview of the web application, using a number of different architectural views to depict different aspects of the web application. This document is intended to capture and convey the significant architectural decisions that have been made for this web application.

1.2 Scope

This document provides an architectural overview of Investr, Investr is being developed by Team LAST to educate and provide business students with an easy to access, online educational web application to provide practical education.

1.3 Definitions, Acronyms and Abbreviations

Important terms and concepts are listed here. More will be added by the project teams.

Stock market A place where shares of publicly listed companies are exchanged.

ASX Australian Securities Exchange

Shares Units of ownership interest in a corporation or financial asset that provides for an equal distribution in any profits in the form of dividends.

Dividend A distribution of a portion of a company's earnings, decided by the board of directors, to a class of its shareholders.

UI User Interface

Model A schematic description of a system that accounts for its known or inferred properties [http://www.answers.com]

Game Game refers to INVESTR

Profile Profile pages of users that display their account details

Stock A type of security that signifies ownership in a corporation and represents a claim on part of the corporation's assets and earnings

Leaderboard A list of the top players with the highest amount of money in the game during a certain period

Brokerage cost A fee charged by an agent or agent's company to conduct transactions between buyers and sellers.

API A set of functions and procedures that allows the creation of applications which access the features or data of an operating system, application, or other service [http://www.answers.com]

1.4 References

- http://www.investopedia.com/terms/s/stockmarket.asp
- http://www.investopedia.com/terms/s/shares.asp
- http://www.investopedia.com/terms/d/dividend.asp
- http://www.asx.com.au/
- http://www.investopedia.com/terms/s/stock.asp
- http://www.investopedia.com/terms/b/brokerage-fee.asp

2. Architectural Representation

This document presents the architecture as a series of views; use case view, logical view, process view and deployment view. There is no separate implementation view described in this document. These are views on an underlying Unified Modeling Language (UML) model developed using Rational Rose.(Will be edited)

3. Architectural Goals and Constraints

There are some key requirements and system constraints that have a significant bearing on the architecture. They include:

- The database should be able to store all data being pulled from the Yahoo Finance API at hourly intervals and stay up to date
- All users who have access to a computer or mobile device and has access to the internet is able to connect to the website.
- All user data should be kept confidential; must ensure complete protection of data from unauthorized access.
- All performance and loading requirements must be taken into consideration as the architecture is being developed.

4. Use Case View

4.1 Architecturally Significant Use Cases

This is a description of the use-case view of the software architecture. The Use Case view is an important input to the selection of the set of scenarios. It also describes the set of scenarios and use cases that have a substantial architectural coverage.

The Investr use cases are:

- Register a trading account
- Login
- Create a game session
- Player management console
- Search and purchase shares
- View leaderboard
- Chat system and friend list

4.1.1 Register a trading account

This use case allows a potential user to create a trading account that gives the user the ability to access most of the web application. Main actor of this use case is student.

4.1.2 Login

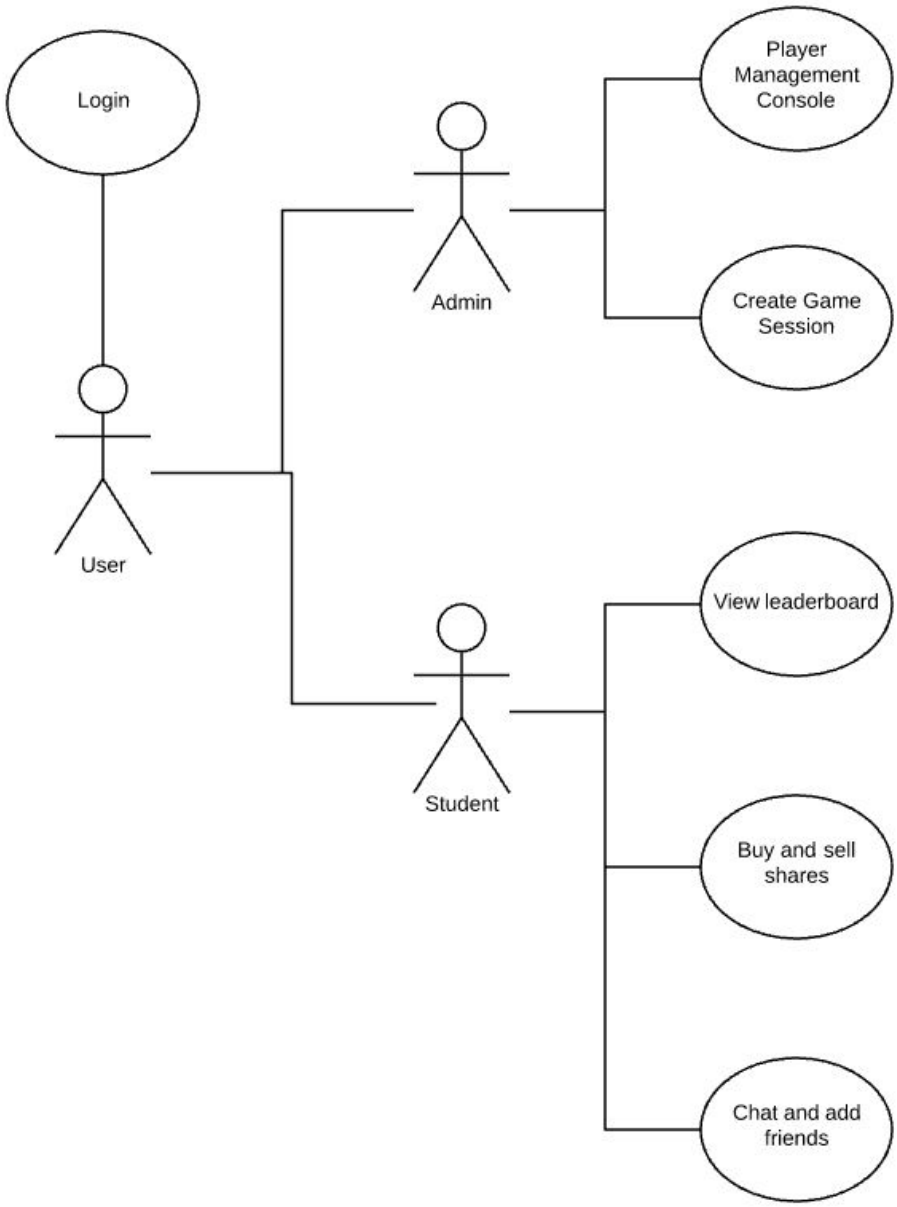
This use case describes how a user logs into the Investr Web Application, the actors are student and admin.

4.1.3 Create and participate in a game session
This use case allows the admin to create a game session with a player limit of 10 where students are able to join and participate for the duration of this game session.

4.1.4 Player management console
This use case allows the admin to view and manage all currently registered students and can choose to remove or edit the student's profile for appropriate reasons.
4.1.5 Search and purchase shares
This use case allows the student to search through a range of available shares and purchase/sell them to gain profit in the game's own virtual currency.

4.1.6 View Leaderboard
This use case allows the student to view their total net worth and the leaderboard ranks the players regarding to their net worth amount.

4.1.7 Chat system and Friends List
This use case allows the students to add other registered students as friends, which they can then be able to communicate with each other through the chat system.



5. Logical View

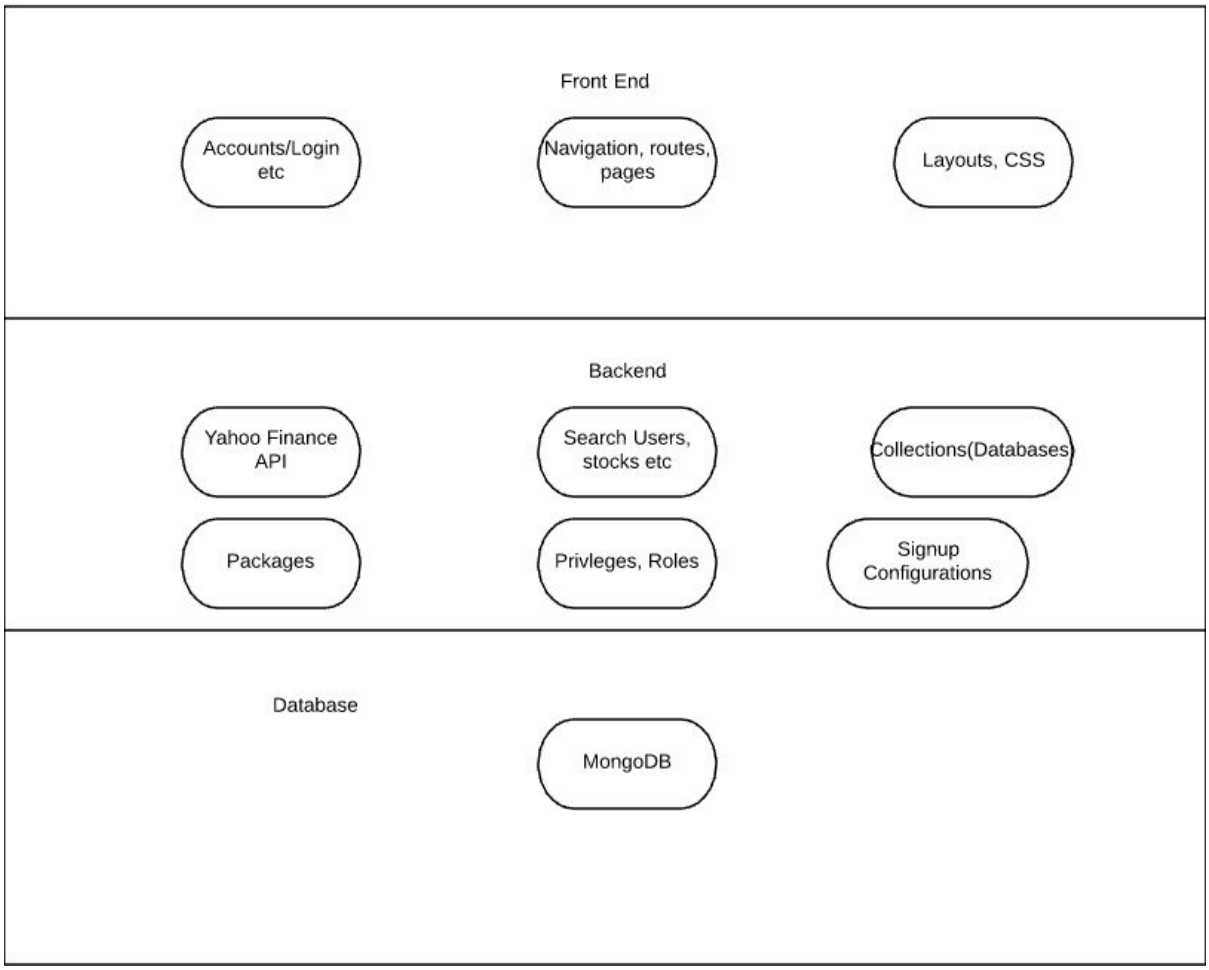
5.1 Architecture Overview - Package and Subsystem Layering

Application - This layer has all the html and client side javascript that the user sees and interacts with. This layer depends on Meteor's packages such as flow-router and account-ui.

Trading System - This layer contains the algorithm and server-side javascript that handles the logic of trading and selling stocks.

Middleware - the middleware layer is comprised of mongodb.

6. Process View



The front-end components consists of:

- Accounts and Login details
- Navigations, routes and pages
- Layouts and general CSS files

The back-end components consists of:

- The Yahoo Finance API
- Searching for Users and Stock data
- Collections/Databases
- Packages
- Privileges and Roles for the users
- Signup Configurations

Lastly the database being used is MongoDB.

7. Deployment View

The deployment view is exactly what the website looks like as seen from the User's Manual screenshots. As the website is deployed all the CSS makes the website more colourful. Cloud9 online workspace was used to collaborate with the coding of the website as all members could equally contribute to the work. AWS web server will be used to deploy the final product as of currently it is still being hosted on the Cloud9 servers.

8. Size and Performance

The website loads quite quickly and performs smoothly with very little to no delays or lag. The size of the overall software is quite moderate with different files of coding as well as the database to store all the various data pulled from the API and also user account information.

9. Quality

The software architecture supports the quality requirements.

1. The desktop web user-interface are compatible with the following list of supported browsers: Android stock browser(webkit-based), Chrome, Firefox 7+, Safari 4+ and Desktop Opera.
2. The user interface of Investr shall be designed for ease-of-use and shall be appropriate for a computer-literate user with no additional training.
3. Features of Investr will have online instructions, and a form of communication with the admin for further assistance.
4. Investr will be available 24 hours a day, 7 days a week, and will have no more than 4% down time.